DR-138

Service Manual

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* Mechanical Parts

ALINCO, INC.

SPECIFICATIONS

General	
Frequency Range	
RX	136~174MHz
TX	136~174MHz
Number of channels	200
Operation mode	FM 16K ϕ F3E (Wide) 11K ϕ F3E (Narrow)
PLL Stepping	2.5, 5, 6.25, 8.33, 10, 12.5, 20, 25, 30, 50KHz
Antenna Impedance	50Ω
Working temperature	–20℃~+60℃
Power Supply	13.8V DC±15% (11.7~15.8V)
Grounding Method	Negative ground
Current Drain	Less than 300mA on standby
	Less than 600mA on receive
	Less than 10A on transmit
Frequency Stability	±2.5ppm
Dimensions (W x H x D) (Dimensions including protrusions)	145 x 47 x 190 mm
Weight (Including microphone)	Approx. 1.2kg
TRANSMITTER	
Power Output	
High	60W
Mid	25W
Low	About 10W
Modulation	Reactance modulation
Maximum frequency deviation	Wide : ±5kHz Narrow : ±2.5kHz
Spurious emission	60dB
Adjacent channel power	Wide : 70dB Narrow : 60dB
Noise and hum ratio	Wide : 40dB Narrow : 36dB
Microphone Impedance	1KΩ
RECEIVER	
Receiver circuitry	Double conversion superheterodyne
Intermediate Frequency (1st / 2nd)	38.85MHz / 450kHz
Sensitivity (12dB SINAD)	Wide : 0.25μV or less Narrow : 0.35μV or less
Squelch Sensitivity	0.126μV or less
Adjacent channel selectivity	Wide : 70dB Narrow : 60dB
Intermodulation rejection ratio	60dB
Spurious and image rejection ratio	70dB
Audio Output (8Ω,10% distortion)	2W or higher (10% distortion)
Audio Output Impedance	8Ω

CIRCUIT DESCRIPTION

Frequency configuration

The receiver utilizes double conversion. The first IF is 38.850 MHz and the second IF is 450kHz. The first local oscillator signal is supplied from the PLL circuit.

The PLL circuit in the transmitter generates the necessary frequencies. Fig. 1 shows the frequencies.

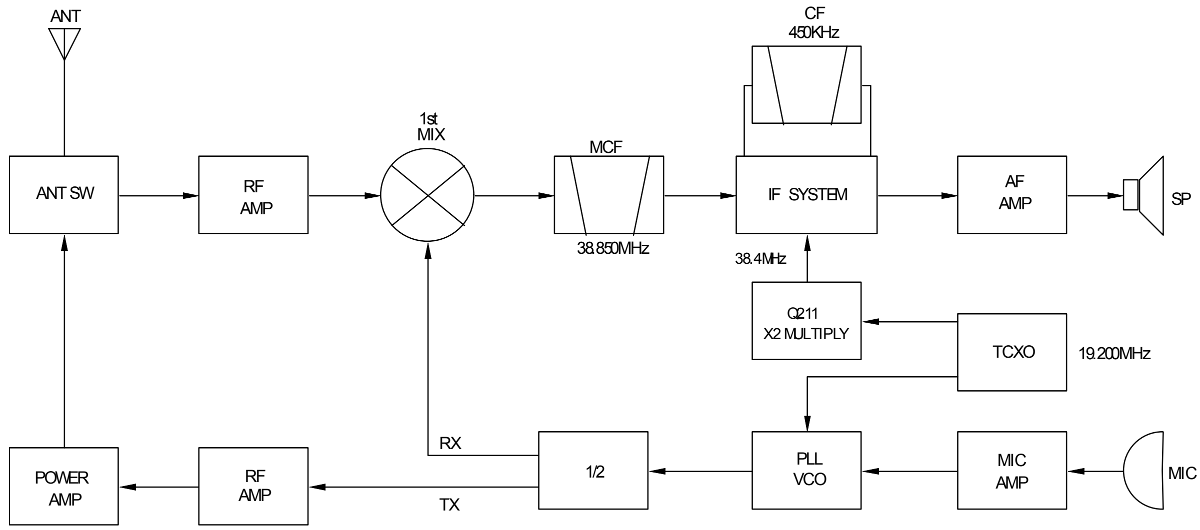


Fig. 1 Frequency configuration

Receiver

The receiver is double conversion super heterodyne, designed to operate in the frequency range of 136 to 173.9975MHz.

The frequency configuration is shown in Fig. 1.

■ Front - end RF amplifier

An incoming signal from the antenna is applied to an RF amplifier (Q206) after passing through a transmit/receive switch circuit (D210 are off) and a band pass filter (L206, L207 and varactor diodes : D207, D208). After the signal is amplified (Q206), the signal is filtered through a band pass filter (L204, L205 and varactor diodes: D205, D206) to eliminate unwanted signals before it is passed to the first mixer.

The voltage of these diodes are controlled by tracking the CPU (U2) center frequency of the band pass filter. (See Fig. 2.)

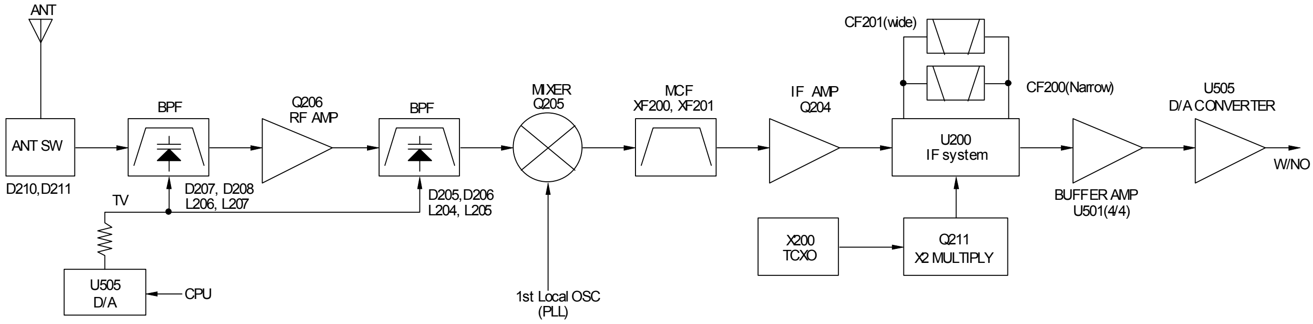


Fig. 2 Receiver section configuration

CIRCUIT DESCRIPTION

■ First Mixer

The signal from the RF amplifier is heterodyned with the first local oscillator signal from the PLL frequency synthesizer circuit at the first mixer (Q205) to create a 38.850MHz first intermediate frequency (1st IF) signal. The first IF signal is then fed through one pair of monolithic crystal filter (MCF : XF200 and XF201) to further remove spurious signals.

■ IF amplifier

The first IF signal is amplified by Q204, and then goes to U200 (FM processing IC). The signal is heterodyned again with a second local oscillator signal within U200 to create a 450kHz second IF signal. The second IF signal is then fed through a 450kHz ceramic filter (Wide : CF201, Narrow : CF200) to further eliminate unwanted signals before it is amplified and FM detected in U200.

■ Wide/Narrow Switching Circuit

The Wide port and Narrow port (pin 75) of the CPU is used to switch between ceramic filters. When the Wide port is high, the ceramic filter SW diodes (D200, D201) cause CF201 to turn on to receive a Wide signal.

When the Narrow port is low, the ceramic filter SW diodes (D200, D201) cause CF200 to turn on to receive a Narrow signal. (See Fig. 3.)

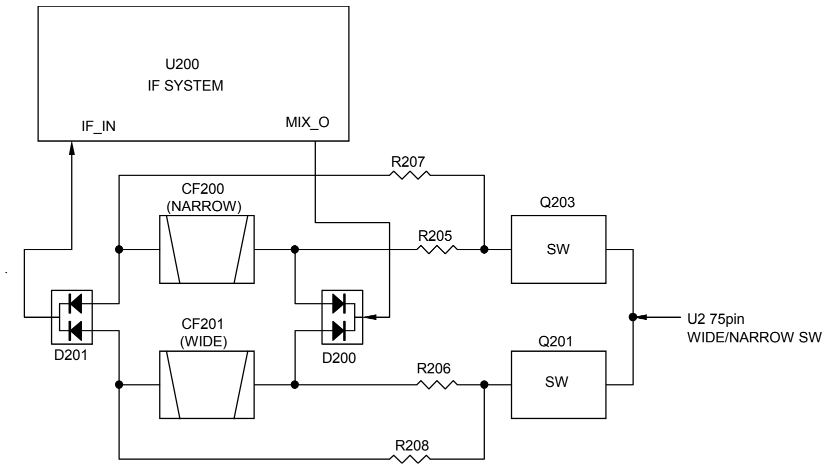


Fig. 3 Wide/Narrow Switching Circuit

■ AF Signal System

The detection signal from IF IC (U200) goes to D/A converter (U505) for adjusting the gain and is output to AF filter (U502) for characterizing the signal. It is also amplified by entering compander amplifier (U500). The AF signal output from U500 and the TONE signal are summed up and the resulting signal goes to the D/A converter (U505). The AFO output level is adjusted by the D/A converter. The signal output from the D/A converter is input to the audio power amplifier (U506). The AF signal from U505 was inputted into (U506).The AF signal from (U506) switches between the internal speaker and speaker jack (J502) output. (See Fig. 4.)

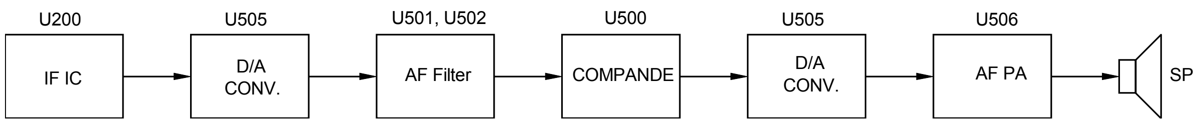


Fig. 4 AF signal system

CIRCUIT DESCRIPTION

■ Squelch Circuit

The detection output from the FM IF IC (U200) passes through a noise amplifier (U202 B/2) to detect noise. A voltage is applied to the CPU (U2). The CPU controls squelch according to the voltage (SQIN) level. The signal from the RSSI pin of U200 is used for S-meter. The electric field strength of the receive signal can be known before the SQIN voltage is input to the CPU, and the scan stop speed is improved.

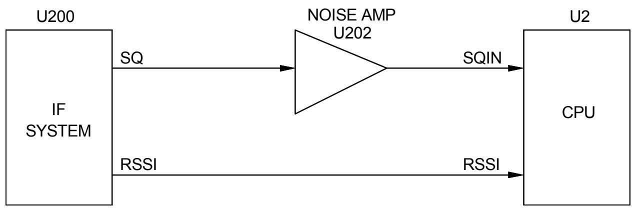


Fig. 5 Squelch Circuit

PLL frequency synthesizer

The PLL circuit generates the first local oscillator signal for reception and the RF signal for transmission.

■ PLL

The frequency step of the PLL circuit is 5 or 6.25kHz. A 19.200MHz reference oscillator signal is divided at U205 by a fixed counter to produce the 5 or 6.25kHz reference frequency. The voltage controlled oscillator (VCO) output signal is buffer amplified by Q210, then divided in U205 by a dualmodule programmable counter. The divided signal is compared in phase with the 5 or 6.25kHz reference signal in the phase comparator in U205. The output signal from the phase comparator is filtered through a low-pass filter and passed to the VCO to control the oscillator frequency. (See Fig. 6.)

■ VCO

The operating frequency is generated by Q218 in transmit mode and Q217 in receive mode. The oscillator frequency is controlled by applying the VCO control voltage, obtained from the phase comparator, to the varactor diodes (D219 and D222 in transmit mode and D217 and D220 in receive mode). The TX/RX pin is set high in receive mode causing Q202 and Q219 to turn Q218 off, and turn Q217 on. The TX/RX pin is set low in transmit mode. The outputs from Q217 and Q218 are amplified by Q209 and sent to the RF amplifiers. (See Fig. 6.)

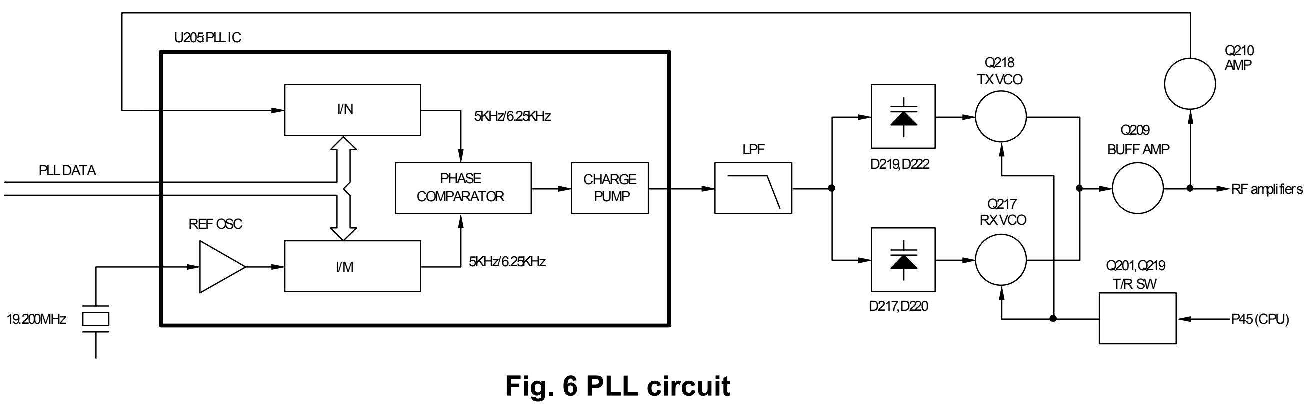


Fig. 6 PLL circuit

■ UNLOCK Circuit

During reception, the RXC signal goes high, the TXC signal goes low, and Q108 turns on. Q101 turns on and a voltage is applied to (8R). During transmission, the RXC signal goes low, the TXC signal goes

CIRCUIT DESCRIPTION

high and Q104 turns on. Q102 turns on and a voltage is applied to (8T).

The CPU in the control unit monitors the PLL (U205) LD signal directly. When the PLL is unlocked during transmission, the PLL LD signal goes low. The CPU detects this signal and makes the TXC signal low. When the TXC signal goes low, no voltage is applied to 8T, and no signal is transmitted. (See Fig. 7.)

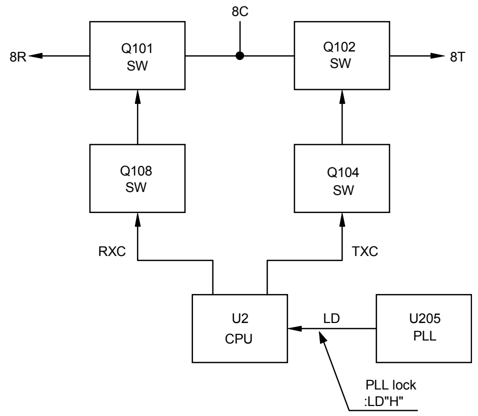


Fig. 7 Unlock circuit

Transmitter

■ Outline

The transmitter circuit produces and amplifies the desired frequency directly. It FM-modulates the carrier signal by means of a varicap diode.

■ Power Amplifier Circuit

The transmit output signal from the VCO passes through the transmission/reception selection diode (D203) and amplified by Q220, Q212 and Q214. The amplified signal goes to the final amplifier (Q216) through a low-pass filter. The low-pass filter removes unwanted high-frequency harmonic components, and the resulting signal is transmitted through the antenna terminal. (See Fig. 8.)

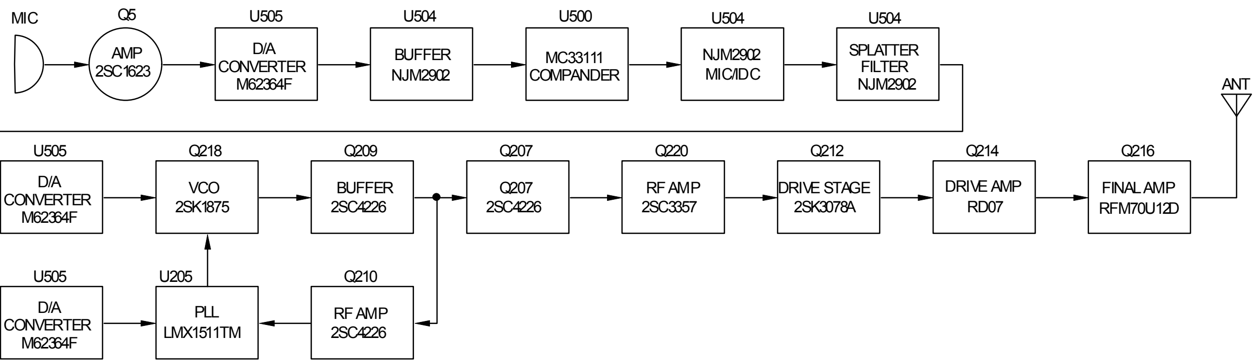


Fig. 8 Transmitter system

■ APC Circuit

The automatic transmission power control (APC) circuit detects part of a final amplifier output with a diode (D230, D231) and applies a voltage to U204. U204 compares the APC control voltage (PC) generated by the D/A converter (U505) with the detection output voltage. U204 generates the voltage to control Q214 and Q216 and stabilizes transmission output.

The APC circuit is configured to protect over current of Q214 and Q216 due to fluctuations of the load

CIRCUIT DESCRIPTION

at the antenna end and to stabilize transmission output at voltage and temperature variations. (See Fig. 9.)

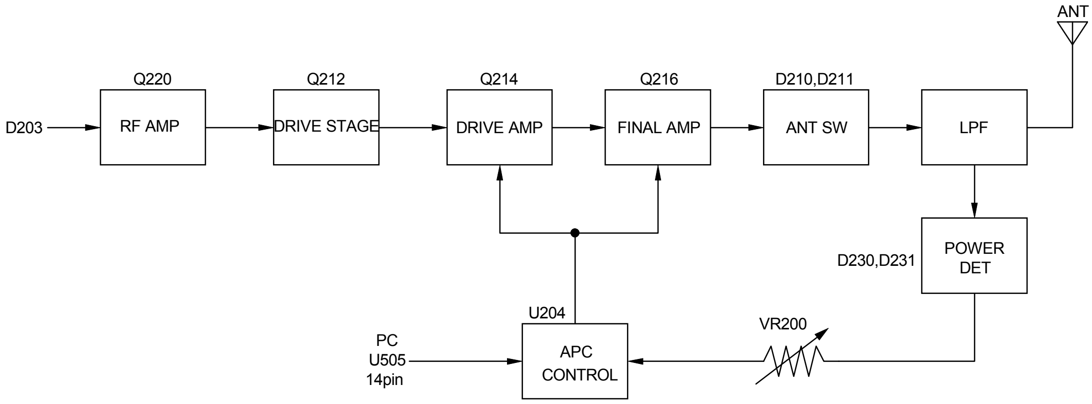


Fig. 9 APC Circuit

Control Circuit

The CPU carries out the following tasks (See Fig. 10.):

1) Controls the WIDE, NARROW, TX/RX outputs.
2) Controls the display unit.
3) Controls the PLL (U205).
4) Controls the D/A converter (U505) and adjusts the volume, modulation and transmission power.

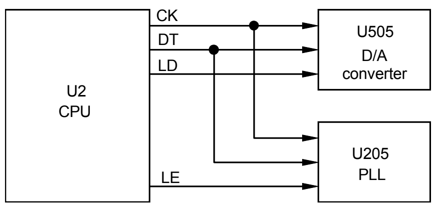


Fig. 10 Control circuit

■ Memory Circuit

The transceiver has an 128k-bit EEPROM (U6). The EEPROM contains adjustment data. The CPU (U2) controls the EEPROM through two serial data lines. (See Fig. 11.)

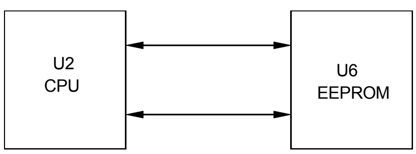


Fig. 11 APC Circuit

■ Display Circuit

The CPU (U2) controls the display LCD and LEDs. When power is on, the CPU will use the P07 line to control the LCD illumination backlight LEDs.

The brightness function is controlled by the switch Q6 and Q7.

The LCD driver (U3) and CPU (U2) communicate through the P85, P86, lines. (See Fig. 12.)

CIRCUIT DESCRIPTION

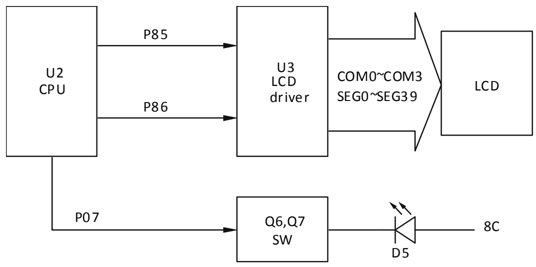


Fig. 12 Display circuit

■ Encode

CTCSS, DCS data of the P31 Line is output from pin 42 of the CPU. The signal passes through a low-pass CR filter and goes to the D/A converter (U505).

High-speed data (2T/5T/DTMF) is output from pin 58 of the CPU. The signal passes through a low-pass CR filter, providing TX and SP output audio frequency, and has processed IDC after amplified by a U504(B/4). The signal then passes through a low-pass filter (separation filter) U504 (C/4 and D/4), and filter the parts which are higher than 3kHz frequency, and the signal attained goes into the D/A converter (U505).

The D/A converter (U505) adjusts the balance between the MOD and CTCSS/DCS levels. Signal of CTCSS/DCS port is summed with MOD and the resulting signal goes to the VCO. This signal is applied to a varicap diode in the VCO for direct FM modulation. (See Fig. 13.)

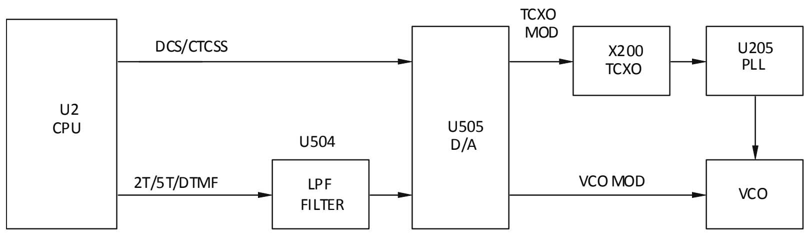


Fig. 13 Encode circuit

■ Decode

DCS/CTCSS/DTMF/2T/5T

The signal from (AFWN) entering into AF signal and higher audio frequencies output by pin 1 of U501: A are cut by low-pass filter U503 and amplified. then led to pin 51 of CPU. The input signal is compared with the programmed tone frequency code in the CPU. The squelch will open when they match.

The signal (DTMF-DET) goes to P02 (pin 52) of CPU (U2). The DTMF/2T/5T input signal from the DTMF-DET goes to compared U2008. The compared signal goes to the CPU for processing and be decoded within the CPU (U2). (See Fig. 14.)

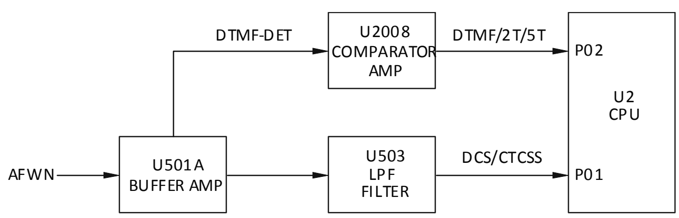


Fig. 14 Decode circuit

CIRCUIT DESCRIPTION

■ D/A Converter

The D/A converter (U505) is used to adjust MO modulation, AF volume, TV voltage, FC reference voltage, and PC POWER CONTROL voltage level.
Adjustment values are sent from the CPU as serial data. The D/A converter has a resolution of 256 and the following relationship is valid.

Power Supply Circuit

When the POWER switch on the display unit is pressed, the power port on the display unit which is connected to CPU port 45 (POWER), goes low, then CPU port 23 (P20) goes high, Q103 turns on, SBE SW (Q100) turns on and power (SBE) is supplied to the radio.

During receiving, the CPU port 19 (P24) output "H" level. Q101 and Q108 turn on. and reception circuit is supplied by 8V power supply (8R).

When the receiving is at FM, the CUP port 16 (P27) output "L" level. Q106 turns on and supplies 8V power supply to FM reception circuit (VFM).

During transmitting, CPU port 18 (P25) output "H" level. Q102 and Q104 turn on. Transmitting circuit output 8V power supply (8T). (See Fig. 15.)

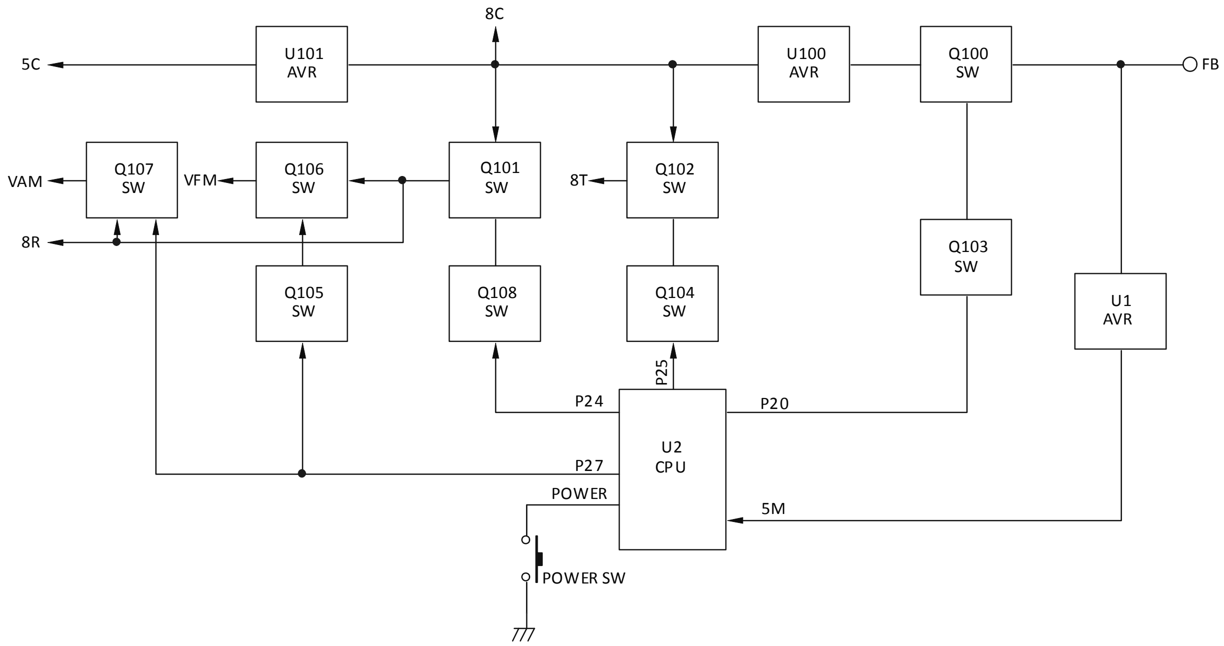


Fig. 15 Power supply circuit

P PARTS LIST

DISPLAY UNIT

Ref. No	Parts No.	Description of item	Size (LxW)(mm)	Qty	Specification
C1-C2		SMT CAPACITOR	0603	2	104±10% 50V
C3		SMT CAPACITOR	0603	1	102±10% 50V
C4		SMT CAPACITOR	0603	1	104±10% 50V
C5		SMT CAPACITOR	0603	1	102±10% 50V
C6		SMT CAPACITOR	0603	1	104±10% 50V
C7-C20		SMT CAPACITOR	0603	14	102±10% 50V
C21		SMT CAPACITOR	0603	1	103±10% 50V
C22		SMT CAPACITOR	0603	1	104±10% 50V
C23		SMT CAPACITOR	0603	1	103±10% 50V
C24		SMT CAPACITOR	0603	1	102±10% 50V
C25-C27		SMT CAPACITOR	0603	3	103±10% 50V
C28		SMT CAPACITOR	0603	1	102±10% 50V
C29		SMT CAPACITOR	0603	1	104±10% 50V
C30		SMT CAPACITOR	0603	1	103±10% 50V
C31		SMT CAPACITOR	0603	1	NO USE
C32		SMT CAPACITOR	0603	1	105±10% 50V
C33-C34		SMT CAPACITOR	0603	2	473±10% 50V
C35-C36		SMT CAPACITOR	0603	2	273±10% 50V
C37		SMT CAPACITOR	0603	1	225±10% 50V
C38		SMT CAPACITOR	0603	1	103±10% 50V
C39		SMT CAPACITOR	0603	1	102±10% 50V
C40		SMT CAPACITOR	0603	1	22P±5% 50V
C41		SMT CAPACITOR	0603	1	102±10% 50V
C42		SMT CAPACITOR	0603	1	20P±5% 50V
C43-C44		SMT CAPACITOR	0603	2	103±10% 50V
C45		SMT CAPACITOR	0603	1	102±10% 50V
C46		SMT RESISTOR	0603	1	68K±5%

PARTS LIST

Ref. No	Parts No.	Description of item	Size (LxW)(mm)	Qty	Specification
C48		SMT CAPACITOR	0603	1	100P±5% 50V
C49		SMT CAPACITOR	0603	1	225±10% 50V
C50		SMT CAPACITOR	0603	1	104±10% 50V
C51		SMT CAPACITOR	0603	1	8P±0.1P 50V
C52		SMT CAPACITOR	0603	1	103±10% 50V
C53		SMT CAPACITOR	0603	1	102±10% 50V
C54-C55		SMT CAPACITOR	0603	2	102±10% 50V
C1000-C1016		SMT CAPACITOR	0603	17	NO USE
E1		ELECTRO	4×8	1	22uF25V
E2		ELECTRO	4×8	1	47uF/10V
E3		SMT TANTALUM CAPACITOR	A type	1	22uF±20% 10V
E4		ELECTRO	4×8	1	22uF/10V
E5		SMT TANTALUM CAPACITOR	A type	1	22uF±20% 10V
E1000-E1003		SMT TANTALUM CAPACITOR	A type	3	NO USE
R1		SMT RESISTOR	0603	1	10K±5%
R2		SMT RESISTOR	0603	1	22K±5%
R3-R7		SMT RESISTOR	0603	4	1K±5%
R8		SMT RESISTOR	0603	1	10K±5%
R9-R10		SMT RESISTOR	0603	2	1K±5%
R11		SMT RESISTOR	0603	1	10K±5%
R12		SMT RESISTOR	0603	1	1K±5%
R13		SMT RESISTOR	0603	1	100R±5%
R14-R16		SMT RESISTOR	0603	3	1K±5%
R17		SMT RESISTOR	0603	1	33K±5%
R18-R19		SMT RESISTOR	0603	2	10K±5%
R20		SMT RESISTOR	0603	1	1K±5%
R21		SMT RESISTOR	0603	1	47K±5%
R22		SMT RESISTOR	0603	1	33K±5%

PARTS LIST

Ref. No	Parts No.	Description of item	Size (LxW)(mm)	Qty	Specification
R23-R26		SMT RESISTOR	0603	4	10K±5%
R27		SMT RESISTOR	0603	1	100K±5%
R28-R34		SMT RESISTOR	0603	7	10K±5%
R35		SMT CAPACITOR	0603	1	183±10% 50V
R36		SMT RESISTOR	0603	1	220K±5%
R37-R39		SMT RESISTOR	0603	3	47K±5%
R40		SMT RESISTOR	0603	1	4.7K±5%
R41-R43		SMT RESISTOR	0603	3	10K±5%
R44		SMT RESISTOR	0603	1	1.2K±5%
R45		SMT RESISTOR	0603	1	15K±5%
R46		SMT RESISTOR	0603	1	100R±5%
R47		SMT RESISTOR	0603	1	12K±5%
R49		SMT RESISTOR	0603	1	1.2K±5%
R50		SMT RESISTOR	0603	1	180K±5%
R51		SMT RESISTOR	0603	1	750R±5%
R52		SMT RESISTOR	0603	1	560R±5%
R53		SMT RESISTOR	0805	1	68R±5%
R54		SMT RESISTOR	0603	1	100R±5%
R55		SMT RESISTOR	0603	1	470R±5%
R56		SMT RESISTOR	0603	1	4.7K±5%
R57		SMT RESISTOR	0603	1	2.2K±5%
R58		SMT RESISTOR	0603	1	4.7K±5%
R59		SMT RESISTOR	0603	1	470K±5%
R60		SMT RESISTOR	0603	1	22K±5%
R61		SMT RESISTOR	0603	1	56K±5%
R62		SMT RESISTOR	0603	1	33K±5%
R63-R64		SMT RESISTOR	0805	2	56R±5%
R65		SMT RESISTOR	0603	1	100R±5%

PARTS LIST

Ref. No	Parts No.	Description of item	Size (LxW)(mm)	Qty	Specification
R66		SMT RESISTOR	0603	1	10K±5%
R67		SMT RESISTOR	0603	1	39K±5%
R68		SMT RESISTOR	0603	1	560R±5%
R69		SMT RESISTOR	0603	1	10K±5%
R70		RESISTOR	DIP	1	100R/1W±5%
R71		SMT RESISTOR	0603	1	0R±5%
R72		SMT RESISTOR	0603	1	NO USE
R73		SMT RESISTOR	0603	1	150R±5%
R74-R75		SMT RESISTOR	0603	2	NO USE
R77		SMT RESISTOR	0603	1	1.5K±5%
R1000-R1016		SMT RESISTOR	0603	17	NO USE
D1-D2		SMT ZENER DIODE	0805	2	5.6V
D3		SMT LIGHTED DIODE	0603	1	ORANGE
D4		SMT ZENER DIODE	0805	1	5.6V
D5		LIGHTED DIODE	DIP	1	BLUE AND ORANGE
D6		SMT DIODE	SC-70	1	1SS372
D7		SMT DIODE	0603	1	HSC277
D8		SMT LIGHTED DIODE	0603	1	ORANGE
D9	ZXL1008	SMT LIGHTED DIODE	0603	1	RED
D10-D13		SMT DIODE	SOT-323	4	DA221
D14-D16	ZXL1009	SMT LIGHTED DIODE	0603	3	ORANGE
D17		SMT LIGHTED DIODE	0603	1	ORANGE
DS1		LCD		1	LCD
Q1		SMT DIGITAL TRANSISTOR	EMT3	1	DTC144EE
Q2		SMT DIGITAL TRANSISTOR	EMT3	1	DTC114EE
Q3		SMT DIGITAL TRANSISTOR	EMT3	1	DTC144EE
Q4		SMT DIGITAL TRANSISTOR	EMT3	1	DTC114EE
Q5-Q6		SMT TRANSISTOR	SOT-23	2	2SC1623

PARTS LIST

Ref. No	Parts No.	Description of item	Size (LxW)(mm)	Qty	Specification
Q7		SMT TRANSISTOR	SOT-89	1	2SD1664
Q8		SMT DIGITAL TRANSISTOR	EMT3	1	DTC144TE
Q9-Q10		SMT DUAL DIGITAL TRANSISTOR	SC-88A	2	NO USE
U1		SMT IC	TO-92	1	HT7550-1
U2	ZXA1013	SMT IC	SQFP-64	1	R5F212A8SNFP
U3		SMT IC	SQFP-64	1	BL55076
U6		SMT IC	SOP-8	1	AT24C128RM
U1000		SMT IC	SSOP24	1	NO USE
L1-L3		SMT FERRITE BEAD (BLACK)	0805	3	271T
L4-L5		SMT FERRITE BEAD (BLACK)	0603	2	271T
L1000-L1001		SMT FERRITE BEAD (BLACK)	0603	2	NO USE
J1	ZUE1007	FLAT CABLE CONNECTOR (Erection type)	SIPM32	1	0.5S-1-32PB
J2	ZUJ1003	JACK		1	NO USE
J3	ZUE1008	Mic Connector	SKY8	1	HAND MIC INTERFACE
J4-J5		SMT RESISTOR	0603	2	NO USE
J6		SMT CONNECTOR(BLUETOOTH)	SIP1.25M4H	1	NO USE
S1	ZUU1011	SWITCH	6×3.5×4.5	1	POWER
S2	ZUU1011	SWITCH	6×3.5×4.5	1	FUNC
S3	ZUR1002	DIAL		1	ENCODER
S4	ZUU1011	SWITCH	6×3.5×4.5	1	V/M
S5	ZUU1011	SWITCH	6×3.5×4.5	1	MHz
S6	ZUU1011	SWITCH	6×3.5×4.5	1	TSQ
S7	ZUU1011	SWITCH	6×3.5×4.5	1	CALL
S8	ZUU1011	SWITCH	6×3.5×4.5	1	SQL
W1	ZRV1013	VARIOUS RESISTOR		1	10K
Y2		CRYSTAL	49S	1	19.200MHz
Y1000		CRYSTAL		1	NO USE

PARTS LIST

MAIN UNIT

Ref. No	Parts No.	Description of item	Size (LxW)(mm)	Qty	Specification
C100-C104		SMT CAPACITOR	0603	5	103±10% 50V
C105-C109		SMT CAPACITOR	0603	5	102±10% 50V
C110-C111		SMT CAPACITOR	0603	2	104±10% 50V
C112-C113		SMT CAPACITOR	0805	2	104±10% 50V
C200-C213		SMT CAPACITOR	0603	14	103±10% 50V
C214		SMT CAPACITOR	0603	1	NO USE
C215-C225		SMT CAPACITOR	0603	11	103±10% 50V
C226		SMT CAPACITOR	0603	1	102±10% 50V
C227-C230		SMT CAPACITOR	0603	4	104±10% 50V
C231		SMT CAPACITOR	0603	1	NO USE
C232-C237		SMT CAPACITOR	0603	6	104±10% 50V
C238		SMT CAPACITOR	0805	1	104±10% 50V
C240-C242		SMT CAPACITOR	0603	3	104±10% 50V
C243		SMT CAPACITOR	0603	1	471±10% 50V
C244		SMT CAPACITOR	0603	1	103±10% 50V
C245-C248		SMT CAPACITOR	0603	4	104±5% 50V
C249-C250		SMT CAPACITOR	0603	2	102±10% 50V
C251		SMT CAPACITOR	0603	1	33P±5% 50V
C252-C265		SMT CAPACITOR	0603	13	102±10% 50V
C267-C268		SMT CAPACITOR	1206	2	102±10% 50V
C269		SMT CAPACITOR	0603	1	102±10% 50V
C270		SMT CAPACITOR	1206	1	102±10% 50V
C271-C280		SMT CAPACITOR	0603	10	102±10% 50V
C281		SMT CAPACITOR	0805	1	470P±10% 50V
C282		SMT CAPACITOR	0603	1	470P±10% 50V
C283		SMT CAPACITOR	0603	1	102±10% 50V
C284		SMT CAPACITOR	1206	1	102±10% 50V

PARTS LIST

Ref. No	Parts No.	Description of item	Size (LxW)(mm)	Qty	Specification
C285		SMT CAPACITOR	0603	1	102±10% 50V
C286		SMT CAPACITOR	0603	1	104±10% 50V
C287-C288		SMT CAPACITOR	0603	2	102±10% 50V
C289		SMT CAPACITOR	0603	1	82P±5% 50V
C290		SMT CAPACITOR	0603	1	15P±5% 50V
C291-C292		SMT CAPACITOR	0603	2	NO USE
C293		SMT CAPACITOR	0603	1	18P±5% 50V
C294		SMT CAPACITOR	0805	1	47P±5% 50V
C295		SMT CAPACITOR	0603	1	NO USE
C296		SMT CAPACITOR	0603	1	18P±5% 50V
C297		SMT CAPACITOR	0603	1	2P±0.1P 50V
C298		SMT CAPACITOR	0603	1	1.5P±0.1P 50V
C299		SMT CAPACITOR	0603	1	4P±0.1P 50V
C300-C302		SMT CAPACITOR	0603	3	10P±0.25P 50V
C303		SMT CAPACITOR	0603	1	6P±0.1P 50V
C304-C305		SMT CAPACITOR	0603	2	10P±0.25P 50V
C306		SMT CAPACITOR	0603	1	10P±0.25P 50V
C307		SMT CAPACITOR	0603	1	2P±0.1P 50V
C308-C309		SMT CAPACITOR	0603	2	NO USE
C310-C311		SMT CAPACITOR	1210	2	NO USE
C312-C313		SMT CAPACITOR	1206	2	NO USE
C314		SMT CAPACITOR	1210	1	NO USE
C315-C317		SMT CAPACITOR	0603	3	NO USE
C318-C319		SMT CAPACITOR	1206	2	NO USE
C320		SMT CAPACITOR	0603	1	103±10% 50V
C321		SMT CAPACITOR	0603	1	22P±5% 50V
C322		SMT CAPACITOR	0603	1	47P±5% 50V
C323		SMT CAPACITOR	1206	1	22P±5% 50V

PARTS LIST

Ref. No	Parts No.	Description of item	Size (LxW)(mm)	Qty	Specification
C324		SMT CAPACITOR	0603	1	5P±0.1P 50V
C325		SMT CAPACITOR	0603	1	13P±5% 50V
C326-C338		SMT CAPACITOR	0603	13	471±10% 50V
C339		SMT CAPACITOR	0603	1	682±10% 50V
C340		SMT CAPACITOR	0603	1	471±10% 50V
C341		SMT CAPACITOR	0603	1	5P±0.1P 50V
C342-C343		SMT CAPACITOR	0603	2	27P±5% 50V
C344		SMT CAPACITOR	0603	1	33P±5% 50V
C345-C346		SMT CAPACITOR	1210	2	27P±5% 50V
C347		SMT CAPACITOR	1210	1	36P±5% 50V
C348		SMT CAPACITOR	0603	1	NO USE
C349-C350		SMT CAPACITOR	1210	2	27P±5% 50V
C351		SMT CAPACITOR	0603	1	22P±5% 50V
C352		SMT CAPACITOR	0603	1	27P±5% 50V
C353		SMT CAPACITOR	0805	1	22P±5% 50V
C354		SMT CAPACITOR	0805	1	NO USE
C355-C356		SMT CAPACITOR	0603	2	6P±0.1P 50V
C357		SMT CAPACITOR	0603	1	33P±5% 50V
C358		SMT CAPACITOR	0603	1	12P±5% 50V
C359		SMT CAPACITOR	0603	1	39P±5% 50V
C360		SMT CAPACITOR	0603	1	9P±0.25P 50V
C361		SMT CAPACITOR	1210	1	NO USE
C362		SMT CAPACITOR	0603	1	10P±0.25P 50V
C363		SMT CAPACITOR	1210	1	NO USE
C364-C365		SMT CAPACITOR	0603	2	10P±5% 50V
C366		SMT CAPACITOR	0603	1	24P±5% 50V
C367		SMT CAPACITOR	0603	1	15P±5% 50V
C368		SMT CAPACITOR	0603	1	33P±5% 50V

PARTS LIST

Ref. No	Parts No.	Description of item	Size (LxW)(mm)	Qty	Specification
C369-C370		SMT CAPACITOR	1210	2	NO USE
C371		SMT CAPACITOR	0603	1	100P±5% 50V
C372-C373		SMT CAPACITOR	0603	2	180P±5% 50V
C374		SMT CAPACITOR	1206	1	100P±5% 50V
C375-C377		SMT CAPACITOR	0603	3	100P±5% 50V
C378-C379		SMT CAPACITOR	0603	2	33P±5% 50V
C380		SMT CAPACITOR	0603	1	680P±10% 50V
C381		SMT CAPACITOR	0805	1	474±10% 50V
C382		SMT CAPACITOR	1210	1	180P±5% 50V
C383		SMT CAPACITOR	1210	1	82P±5% 50V
C384-C385		SMT CAPACITOR	1206	2	12P±5% 50V
C386		SMT CAPACITOR	0603	1	15P±5% 50V
C387		SMT CAPACITOR	1210	1	120P±5% 50V
C388-C392		SMT CAPACITOR	0603	5	NO USE
C393		SMT CAPACITOR	1206	1	1P±0.1P 50V
C394		SMT CAPACITOR	0603	1	5P±0.1P 50V
C395		SMT CAPACITOR	0603	1	NO USE
C396		SMT CAPACITOR	0603	1	9P±0.25P 50V
C397		SMT CAPACITOR	0603	1	15P±5% 50V
C398-C401		SMT CAPACITOR	0603	4	0.5P±0.1P 50V
C402		SMT CAPACITOR	0603	1	12P±5% 50V
C403		SMT CAPACITOR	0603	1	0.75P±0.1P 50V
C404		SMT CAPACITOR	0603	1	33P±5% 50V
C405		SMT CAPACITOR	0603	1	18P±5% 50V
C406		SMT CAPACITOR	0603	1	103±10% 50V
C407		SMT CAPACITOR	0603	1	27P±5% 50V
C408		SMT CAPACITOR	0603	1	2P±0.1P 50V
C409		SMT CAPACITOR	0603	1	30P±5% 50V

PARTS LIST

Ref. No	Parts No.	Description of item	Size (LxW)(mm)	Qty	Specification
C410-C411		SMT CAPACITOR	0603	2	47P±5% 50V
C500-C509		SMT CAPACITOR	0603	10	103±10% 50V
C510-C515		SMT CAPACITOR	0603	5	102±10% 50V
C516-C519		SMT CAPACITOR	0603	4	104±10% 50V
C520-C526		SMT CAPACITOR	0603	7	104P±5% 50V
C527		SMT CAPACITOR	0603	1	82P±5% 50V
C528-C530		SMT CAPACITOR	0603	3	NO USE
C531		SMT CAPACITOR	0603	1	39P±5% 50V
C532		SMT CAPACITOR	0603	1	33P±5% 50V
C533		SMT CAPACITOR	0603	1	680P±10% 50V
C534		SMT CAPACITOR	0805	1	474±10% 50V
C535		SMT CAPACITOR	0805	1	474±5% 50V
C536-C537		SMT CAPACITOR	0603	2	390P±10% 50V
C538		SMT CAPACITOR	0603	1	273±5% 50V
C539		SMT CAPACITOR	0603	1	224±5% 50V
C540		SMT CAPACITOR	0603	1	182±5% 50V
C541		SMT CAPACITOR	0603	1	393±5% 50V
C542-C551		SMT CAPACITOR	0603	10	103±5% 50V
C552		SMT CAPACITOR	0603	1	104±5% 50V
C553		SMT CAPACITOR	0603	1	473±5% 50V
C554		SMT CAPACITOR	0603	1	272±5% 50V
C555		SMT CAPACITOR	0603	1	152±5% 50V
C556		SMT CAPACITOR	0603	1	102P±5% 50V
C557		SMT CAPACITOR	0603	1	105±10% 50V
C558		SMT CAPACITOR	0603	1	332±5% 50V
C559		SMT CAPACITOR	0603	1	680P±5% 50V
C560		SMT CAPACITOR	0603	1	102±5% 50V
C561		SMT CAPACITOR	0603	1	47P±5% 50V

PARTS LIST

Ref. No	Parts No.	Description of item	Size (LxW)(mm)	Qty	Specification
C562		SMT CAPACITOR	0603	1	333±5% 50V
C564-C565		SMT CAPACITOR	0603	2	104±5% 50V
C800-C807		SMT CAPACITOR	0603	7	NO USE
E100-E101		ELECTRO	10×15	2	470uF25V
E102-E105		ELECTRO	4×8	4	47uF25V
E200		ELECTRO	4×8	1	47uF25V
E202		SMT TANTALUM CAPACITOR	A type	1	0.22uF±20% 35V
E203		ELECTRO	4×8	1	100uF16V
E204		ELECTRO	4×8	1	47uF25V
E205		SMT TANTALUM CAPACITOR	B type	1	33uF±20% 10V
E206-E207		SMT TANTALUM CAPACITOR	A type	2	10uF±20% 10V
E208		SMT TANTALUM CAPACITOR	A type	1	4.7uF±20% 10V
E209		SMT TANTALUM CAPACITOR	A type	1	0.22uF±20% 35V
E210		SMT TANTALUM CAPACITOR	A type	1	NO USE
E211		SMT TANTALUM CAPACITOR	A type	1	6.8uF±20% 16V
E212		SMT TANTALUM CAPACITOR	A type	1	0.68uF±20% 35V
E500-E509		SMT TANTALUM CAPACITOR	A type	10	1uF±20% 16V
E510-E513		SMT TANTALUM CAPACITOR	A type	4	10uF±20% 10V
E514		SMT TANTALUM CAPACITOR	A type	1	NO USE
E515		SMT TANTALUM CAPACITOR	A type	1	10uF±20% 10V
E516		SMT TANTALUM CAPACITOR	A type	1	4.7uF±20% 6.3V
E517		SMT TANTALUM CAPACITOR	A type	1	2.2uF±20% 16V
E518		SMT CAPACITOR	1206	1	473±10% 50V
E519		ELECTRO	4×8	1	4.7 uF16V
E520		ELECTRO	4×8	1	10 uF16V
E521		ELECTRO	8×15	1	330uF25V
E522		SMT TANTALUM CAPACITOR	A type	1	2.2uF±20% 10V
E523		SMT TANTALUM CAPACITOR	A type	1	2.2uF±20% 16V

PARTS LIST

Ref. No	Parts No.	Description of item	Size (LxW)(mm)	Qty	Specification
R100		SMT RESISTOR	2010	1	470R±5%
R101		SMT RESISTOR	0603	1	4.7K±5%
R102		SMT RESISTOR	0603	1	10K±5%
R103		SMT RESISTOR	0603	1	3.3K±5%
R104-R105		SMT RESISTOR	0603	2	47K±5%
R106		SMT RESISTOR	0805	1	1K±5%
R200		SMT RESISTOR	0603	1	15K±5%
R201		SMT RESISTOR	0603	1	22K±5%
R202		SMT RESISTOR	0603	1	18K±5%
R203		SMT RESISTOR	0603	1	3.3K±5%
R204-R210		SMT RESISTOR	0603	7	10K±5%
R211		SMT RESISTOR	0603	1	270K±5%
R212		SMT RESISTOR	0603	1	27K±5%
R213		SMT RESISTOR	0603	1	10K±5%
R214		SMT RESISTOR	0603	1	15K±5%
R215-R216		SMT RESISTOR	0603	2	10K±5%
R217		SMT RESISTOR	0603	1	100K±5%
R218		SMT RESISTOR	0603	1	47K±5%
R219-R220		SMT RESISTOR	0603	2	10K±5%
R221		SMT RESISTOR	0603	1	1K±5%
R222		SMT RESISTOR	0603	1	NO USE
R223-R224		SMT RESISTOR	0603	2	22K±5%
R225		SMT RESISTOR	0603	1	47K±5%
R226-R227		SMT RESISTOR	0603	2	22K±5%
R228		SMT RESISTOR	0603	1	12K±5%
R229		SMT RESISTOR	0603	1	820R±5%
R230		SMT RESISTOR	0603	1	1 K±5%
R231		SMT RESISTOR	0603	1	470R±5%

PARTS LIST

Ref. No	Parts No.	Description of item	Size (LxW)(mm)	Qty	Specification
R232		SMT RESISTOR	0603	1	NO USE
R233-R235		SMT RESISTOR	0603	3	470R±5%
R236		SMT RESISTOR	0603	1	100R±5%
R237		SMT RESISTOR	0603	1	10R±5%
R238		SMT RESISTOR	0603	1	150R±5%
R239		SMT RESISTOR	0603	1	NO USE
R240		SMT RESISTOR	0603	1	100R±5%
R241		SMT RESISTOR	0603	1	NO USE
R242-R243		SMT RESISTOR	0603	2	100R±5%
R244		SMT RESISTOR	0603	1	220R±5%
R245		SMT RESISTOR	2010	1	100R±5%
R246		SMT RESISTOR	0603	1	220R±5%
R247-R249		SMT RESISTOR	0603	3	100K±5%
R250		SMT RESISTOR	0603	1	39K±5%
R251-R256		SMT RESISTOR	0603	6	100K±5%
R257		SMT RESISTOR	0603	1	300K±5%
R258-R260		SMT RESISTOR	0603	3	100K±5%
R261		SMT RESISTOR	0603	1	680R±5%
R262		SMT RESISTOR	0603	1	560R±5%
R263-R265		SMT RESISTOR	0603	3	1 K±5%
R266		SMT RESISTOR	0603	1	NO USE
R267		SMT RESISTOR	0603	1	560R±5%
R268-R270		SMT RESISTOR	0603	3	1 K±5%
R271		SMT RESISTOR	0603	1	6.8K±5%
R272-R273		SMT RESISTOR	0603	2	220R±5%
R274		SMT RESISTOR	0603	1	18K±5%
R275		SMT RESISTOR	0603	1	NO USE
R276-R277		SMT RESISTOR	0603	2	470K±5%

PARTS LIST

Ref. No	Parts No.	Description of item	Size (LxW)(mm)	Qty	Specification
R278		SMT RESISTOR	0603	1	47K±5%
R279-R284		SMT RESISTOR	0603	6	NO USE
R285		SMT RESISTOR	0603	1	100R±5%
R286		SMT RESISTOR	0603	1	100K±5%
R287-R289		SMT RESISTOR	0603	3	NO USE
R290		SMT RESISTOR	0603	1	180R±5%
R291		SMT RESISTOR	0603	1	330K±5%
R292		SMT RESISTOR	0603	1	4.7K±5%
R293-R294		SMT RESISTOR	0603	2	NO USE
R295		SMT RESISTOR	0603	1	2.2K±5%
R296		SMT RESISTOR	0603	1	180K±5%
R297-R299		SMT RESISTOR	0603	3	NO USE
R300		SMT RESISTOR	0603	1	2.2K±5%
R301		SMT RESISTOR	0603	1	2K±5%
R302		SMT RESISTOR	0603	1	2.2K±5%
R303-R304		SMT RESISTOR	0603	2	47K±5%
R305		SMT RESISTOR	0603	1	4.7K±5%
R306		SMT RESISTOR	0603	1	47K±5%
R307		SMT RESISTOR	0603	1	470R±5%
R308		SMT RESISTOR	0603	1	68K±5%
R309-R310		SMT RESISTOR	0603	2	47K±5%
R311-R312		SMT RESISTOR	0603	2	270R±5%
R313		SMT RESISTOR	0603	1	560R±5%
R314		SMT RESISTOR	0603	1	18R±5%
R315-R316		SMT RESISTOR	0603	2	22R±5%
R317		SMT RESISTOR	0603	1	470K±5%
R318		SMT RESISTOR	0603	1	5.6K±5%
R319		SMT RESISTOR	0603	1	3.9K±5%

PARTS LIST

Ref. No	Parts No.	Description of item	Size (LxW)(mm)	Qty	Specification
R320		SMT RESISTOR	0805	1	15R±5%
R321-R322		SMT RESISTOR	0603	2	0R
R323		SMT RESISTOR	0603	1	8.2K±5%
R324		SMT RESISTOR	0805	1	330R±5%
R325		SMT RESISTOR	1206	1	330R±5%
R326		SMT RESISTOR	0603	1	560R±5%
R327		SMT RESISTOR	0603	1	NO USE
R328		SMT RESISTOR	0603	1	3.9K±5%
R329		SMT RESISTOR	0603	1	NO USE
R330		SMT RESISTOR	0603	1	47K±5%
R331		SMT RESISTOR	0603	1	100K±5%
R332		SMT RESISTOR	0603	1	10R±5%
R333		SMT RESISTOR	0603	1	100R±5%
R334		SMT RESISTOR	0603	1	100K±5%
R335		SMT RESISTOR	0603	1	4.7K±5%
R336		SMT RESISTOR	0603	1	2.2K±5%
R337		SMT RESISTOR	1206	1	33R±5%
R338		SMT RESISTOR	0603	1	330R±5%
R339		SMT RESISTOR	0603	1	220K±5%
R340		SMT RESISTOR	0603	1	270K±5%
R341		SMT RESISTOR	0603	1	15K±5%
R342		SMT RESISTOR	0603	1	0R
R343		SMT RESISTOR	0603	1	220K±5%
R344		SMT RESISTOR	0603	1	4.7K±5%
R345		SMT RESISTOR	0603	1	NO USE
R346		SMT RESISTOR	0805	1	330R±5%
R500		SMT RESISTOR	0603	1	470R±5%
R501		SMT RESISTOR	0603	1	6.8K±5%

PARTS LIST

Ref. No	Parts No.	Description of item	Size (LxW)(mm)	Qty	Specification
R502-R506		SMT RESISTOR	0603	5	10K±5%
R507		SMT RESISTOR	0603	1	3.3K±5%
R508-R510		SMT RESISTOR	0603	2	47K±5%
R510		SMT RESISTOR	0603	1	22K±5%
R511-R517		SMT RESISTOR	0603	7	1K±5%
R518		SMT RESISTOR	0603	1	10K±5%
R519		SMT RESISTOR	0603	1	2.2K±5%
R520		SMT RESISTOR	0603	1	1K±5%
R521		SMT RESISTOR	0603	1	20K±5%
R522		SMT RESISTOR	0603	1	22K±5%
R523		SMT RESISTOR	0603	1	1.5K±5%
R524		SMT RESISTOR	0603	1	100R±5%
R525		SMT RESISTOR	0603	1	100K±5%
R526		SMT RESISTOR	0603	1	180K±5%
R527-R528		SMT RESISTOR	0603	2	100K±5%
R529		SMT RESISTOR	0603	1	24K±5%
R530-R539		SMT RESISTOR	0603	10	100K±5%
R540		SMT RESISTOR	0603	1	NO USE
R541		SMT RESISTOR	0603	1	1K±5%
R542-R544		SMT RESISTOR	0603	3	NO USE
R545		SMT RESISTOR	0603	1	12K±5%
R546		SMT CAPACITOR	0603	1	473±10% 50V
R547		SMT RESISTOR	0603	1	27K±5%
R548-R550		SMT RESISTOR	0603	3	2.2K±5%
R551		SMT RESISTOR	0603	1	3.9K±5%
R552-R553		SMT RESISTOR	0603	2	1M±5%
R554-R559		SMT RESISTOR	0603	6	0R
R560		SMT RESISTOR	0603	1	18K±5%

PARTS LIST

Ref. No	Parts No.	Description of item	Size (LxW)(mm)	Qty	Specification
R561		SMT RESISTOR	0603	1	120K±5%
R562		SMT RESISTOR	0603	1	33K±5%
R563		SMT RESISTOR	0603	1	470K±5%
R564		SMT RESISTOR	0603	1	390K±5%
R565		SMT RESISTOR	0603	1	33K±5%
R566		SMT RESISTOR	0603	1	56K±5%
R567		SMT RESISTOR	0603	1	120K±5%
R568		SMT RESISTOR	0603	1	56K±5%
R569		SMT RESISTOR	0603	1	12K±5%
R570		SMT RESISTOR	0603	1	68K±5%
R571		SMT RESISTOR	0603	1	25.5K±1%
R572		SMT RESISTOR	0603	1	5.11K±1%
R573		SMT RESISTOR	0603	1	634K±1%
R574		SMT RESISTOR	0603	1	15.8K±1%
R575		SMT RESISTOR	0603	1	29.4K±1%
R576		SMT RESISTOR	0603	1	11.5K±1%
R577		SMT RESISTOR	0603	1	150K±1%
R578		SMT RESISTOR	0603	1	4.22K±1%
R579		SMT RESISTOR	0603	1	715K±1%
R580		SMT RESISTOR	0603	1	18K±5%
R581		SMT RESISTOR	0603	1	39K±5%
R582		SMT RESISTOR	0603	1	680K±5%
R583		SMT RESISTOR	0603	1	150K±5%
R584		SMT RESISTOR	0603	1	6.8K±5%
R585		SMT RESISTOR	0603	1	8.2K±5%
R586		SMT RESISTOR	0603	1	10K±5%
R587		SMT RESISTOR	0603	1	560R±5%
R588		SMT RESISTOR	0603	1	150K±5%

PARTS LIST

Ref. No	Parts No.	Description of item	Size (LxW)(mm)	Qty	Specification
R800-R807		SMT RESISTOR	0603	8	NO USE
RT200		SMT RESISTOR ARRAY	0603	1	100K
D100		SURGE ABSORBER		1	ZSA5A27
D200-D201		SMT DIODE	SOT-416	2	DAN235E
D202		SMT CAPACITOR	0603	1	390P±5% 50V
D203		SMT DIODE	SOT-416	1	DAN235E
D204		SMT CAPACITOR	0603	1	390P±5% 50V
D205-D208		SMT VARIABLE CAPACITANCE DIODE	SC-79	4	HVC376B
D210-C211		DIODE	DO-35	2	L407CDB
D212-D213		SMT DIODE	1206	2	NO USE
D214		SMT DIODE	SOT-523	1	1SS362
D215		SMT VARIABLE CAPACITANCE DIODE	0603	1	NO USE
D216		SMT VARIABLE CAPACITANCE DIODE	0805	1	NO USE
D217		SMT VARIABLE CAPACITANCE DIODE	0805	1	1SV324(V8)
D218		SMT VARIABLE CAPACITANCE DIODE	0805	1	NO USE
D219-D220		SMT VARIABLE CAPACITANCE DIODE	0805	2	1SV324(V8)
D221		SMT VARIABLE CAPACITANCE DIODE	0805	1	NO USE
D222		SMT VARIABLE CAPACITANCE DIODE	0805	1	1SV324(V8)
D223		SMT VARIABLE CAPACITANCE DIODE	0805	1	NO USE
D224-D225		SMT DIODE	0805	2	1SS355
D226-D227		SMT DIODE	SC-79	2	MA2S111
D228		SMT DIODE	0805	1	NO USE
D229		SMT ZENER DIODE	0805	1	8.2V
D230-D231		SMT DIODE	SC-70	2	MA742
D232		SMT VARIABLE CAPACITANCE DIODE	0805	1	1SV214
D233-D234		SMT DIODE	SC-79	2	NO USE
D500		SMT DIODE	SOT323	1	NO USE
D501		SMT DIODE	SC70	1	1SS372

PARTS LIST

Ref. No	Parts No.	Description of item	Size (LxW)(mm)	Qty	Specification
D502		SMT DIODE	SOT-416	1	DAN222
Q100		SMT TRANSISTOR	SC-62	1	2SB1386
Q101		SMT TRANSISTOR	SOT-23	1	2SB624
Q102		SMT TRANSISTOR	SC-62	1	2SB1132
Q103-Q104		SMT DIGITAL TRANSISTOR	SC70	2	DTC114EU
Q105		SMT DIGITAL TRANSISTOR	EMT3	1	DTC144EE
Q106-Q107		SMT DUAL DIGITAL TRANSISTOR	SC-88A	2	UMC4N
Q108		SMT DIGITAL TRANSISTOR	EMT3	1	DTC114EE
Q200-Q201		SMT DUAL DIGITAL TRANSISTOR	SC-88A	2	UMC4N
Q202		SMT DUAL DIGITAL TRANSISTOR	SC-88A	1	NO USE
Q203		SMT DIGITAL TRANSISTOR	EMT3	1	DTA114YE
Q204		SMT TRANSISTOR	SC-70	1	2SC4215
Q205-Q206		SMT FET	SOT-143	2	3SK318
Q207		SMT TRANSISTOR	SC-70	1	2SC4226
Q208		SMT TRANSISTOR	SC-70	1	NO USE
Q209-Q210		SMT TRANSISTOR	SC-70	2	2SC4226
Q211		SMT TRANSISTOR	SC-70	1	2SC4215
Q212		SMT FET	SOT-89	1	2SK3078A
Q213		SMT DIGITAL TRANSISTOR	EMT3	1	DTA114EE
Q214	ZXE1010	SMT FET	PLD	1	RD07
Q216	ZXE1009	SMT FET	TO500	1	RFM70U12D
Q217-Q218		SMT FET	SOT-323	2	2SK1875
Q219		SMT FET	SOT-523	1	2SJ243
Q220		SMT TRANSISTOR	SOT-89	1	2SC3357
Q221		SMT TRANSISTOR	SOT-23	1	2SC1623
Q223-Q224		SMT TRANSISTOR	SOT-523	2	NO USE
Q225		SMT TRANSISTOR	EMT3	1	2SC4617
Q500		SMT DIGITAL TRANSISTOR	EMT3	1	DTC144EE

PARTS LIST

Ref. No	Parts No.	Description of item	Size (LxW)(mm)	Qty	Specification
Q502		SMT TRANSISTOR	SC-70	1	2SC4181
U100	ZXA1015	SMT IC	TO-220	1	MC7808
U101	ZXA1018	SMT IC	TO-92	1	MC78L05
U200		SMT IC	SSOP16	1	TA31136F
U201	ZXA1017	SMT IC	TO-92	1	MC78L05
U202		SMT IC	SSOP8	1	LM2904V
U203	ZXA1016	SMT IC	TO-220-4	1	KIA278R06PI
U204		SMT IC	SSOP8	1	LM2904V
U205	ZXA1025	SMT IC	SSOP20	1	LMX1511TM
U500		SMT IC	SOP16	1	MC33111
U501-U504		SMT IC	SSOP14	4	NJM2902
U505		SMT IC	SSOP24	1	M62364F
U506	ZXA1014	SMT IC	SIP10F	1	LA4600
U800		SMT IC	SSOP16	1	NO USE
L200		SMT SMALL FIXED INDUCTOR	0603	1	68NH
L201		SMT WIRE WOUND INDUCTOR	0805	1	560NH
L202		SMT WIRE WOUND INDUCTOR	0805	1	330NH
L203		SMT SMALL FIXED INDUCTOR	0603	1	NO USE
L204-L207		SMT AIR-CORE COIL		4	8T
L208		SMT RESISTOR	0805	1	0R
L209		SMT RESISTOR	0603	1	0R
L210		SMT SMALL FIXED INDUCTOR	0603	1	82NH
L211		SMT SMALL FIXED INDUCTOR	0603	1	100NH
L212		SMT WIRE WOUND INDUCTOR	0805	1	68NH
L213-L214		SMT WIRE WOUND INDUCTOR	0805	2	NO USE
L215		SMT WIRE WOUND INDUCTOR	0805	1	56NH
L216-L217		SMT FERRITE BEAD (BLACK)	0805	2	30T
L218		SMT SMALL FIXED INDUCTOR	0603	1	10NH

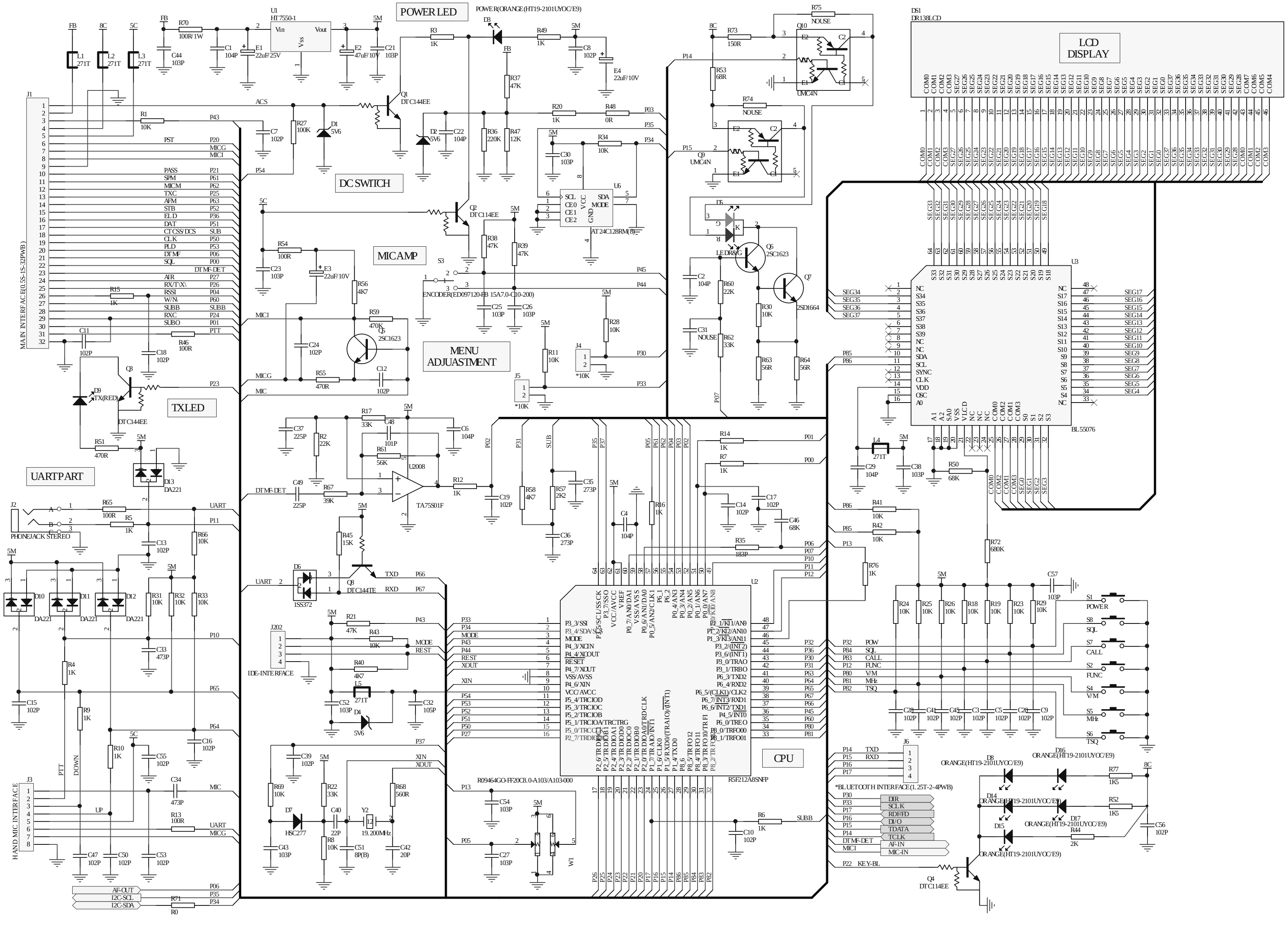
PARTS LIST

Ref. No	Parts No.	Description of item	Size (LxW)(mm)	Qty	Specification
L219		SMT SMALL FIXED INDUCTOR	0603	1	22NH
L220		SMT AIR-CORE COIL		1	3T
L221		SMT AIR-CORE COIL		1	2T
L222		AIR-CORE COIL		1	9.5T
L223		SMT WIRE WOUND INDUCTOR	0805	1	NO USE
L224		AIR-CORE COIL		1	1T
L225		AIR-CORE COIL		1	2.5T
L226-L229		AIR-CORE COIL		4	4.5T
L230-L231		SMT WIRE WOUND INDUCTOR	0805	2	NO USE
L232		SMT AIR-CORE COIL		1	NO USE
L233-L234		SMT SMALL FIXED INDUCTOR	0603	2	10uH
L235		SMT WIRE WOUND INDUCTOR	0805	1	33NH
L236		SMT WIRE WOUND INDUCTOR	0603	1	100NH
L237-L238		SMT SMALL FIXED INDUCTOR	0603	2	10uH
L239		SMT WIRE WOUND INDUCTOR	0603	1	220NH
L240-L241		SMT FERRITE BEAD (BLACK)	0603	2	271T
L242		SMT RESISTOR	0603	1	4.7K±5%
L243		SMT FERRITE BEAD (BLACK)	0603	1	271T
L244		SMT SMALL FIXED INDUCTOR (BLOVE)	2520	1	10uH
L245-L246		AIR-CORE COIL		2	9.5T
L247		SMT WIRE WOUND INDUCTOR	0805	1	47NH
L248		SMT SMALL FIXED INDUCTOR	0603	1	22NH
L249-L250		SMT FERRITE BEAD (BLACK)	0603	2	271T
L251-L252		SMT SMALL FIXED INDUCTOR	0603	2	560NH
CB200		CERAMIC FILTER		1	C24
CF200	ZXC1003	CERAMIC FILTER		1	CFW450G
CF201	ZXC1004	CERAMIC FILTER		1	CFW450E
CV200		SMT CAPACITOR	1206	1	5P±0.25P 50V

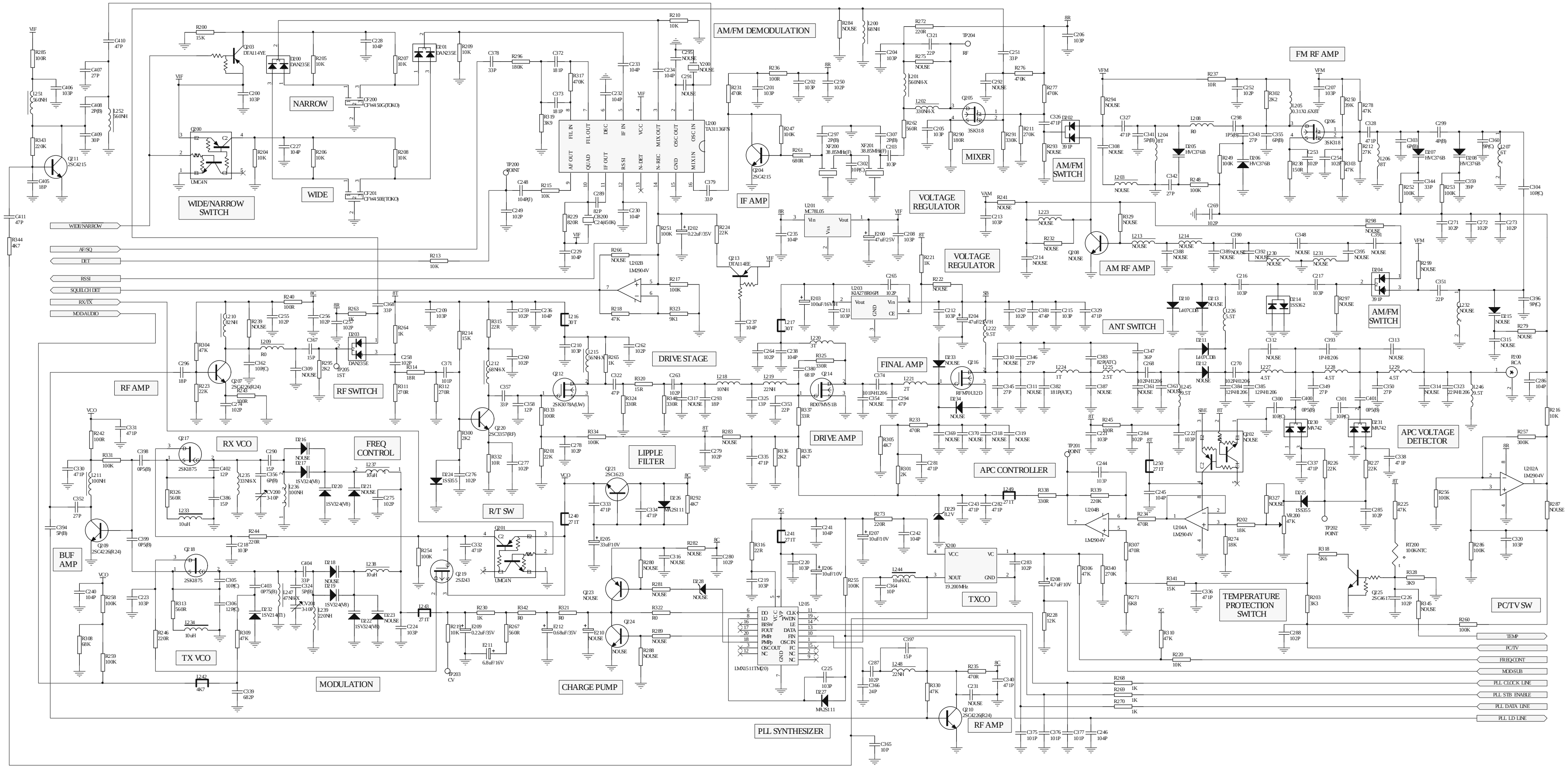
PARTS LIST

Ref. No	Parts No.	Description of item	Size (LxW)(mm)	Qty	Specification
CV201		SMT CAPACITOR	1206	1	6P±0.25P 50V
J500	ZUE1007	FLAT CABLE CONNECTOR (Erection type)	SIPM32	1	0.5S-1-32PB
J501	ZUJ1005	MIC SOCKET 3.5mm	SD-3.5A	1	PHONE-DC
J502	ZUJ1004	JACK		1	SP JACK
J503		JACK	SIP-6/1.5mm	1	CON6
J504		JACK	SIP-2/2.0mm	1	CON2
LS500		SPEAKER		1	SPK-8R-56
VR200		SMT VARIOUS RESISTOR	VER3×3	1	47K±5%
VR500		SMT VARIOUS RESISTOR	VER3×3	1	47K±5%
F100		SMT RESISTOR	1206	1	0R
X200		SMT TCXO		1	19.200MHz
XF200-XF201	ZXF1003	SMT CRYSTAL FILTER		2	38.5MHz
Y200		CRYSTAL		1	NO USE
Y800		CRYSTAL		1	NO USE
	ZUA1002	FLEXIBLE CABLE		1	

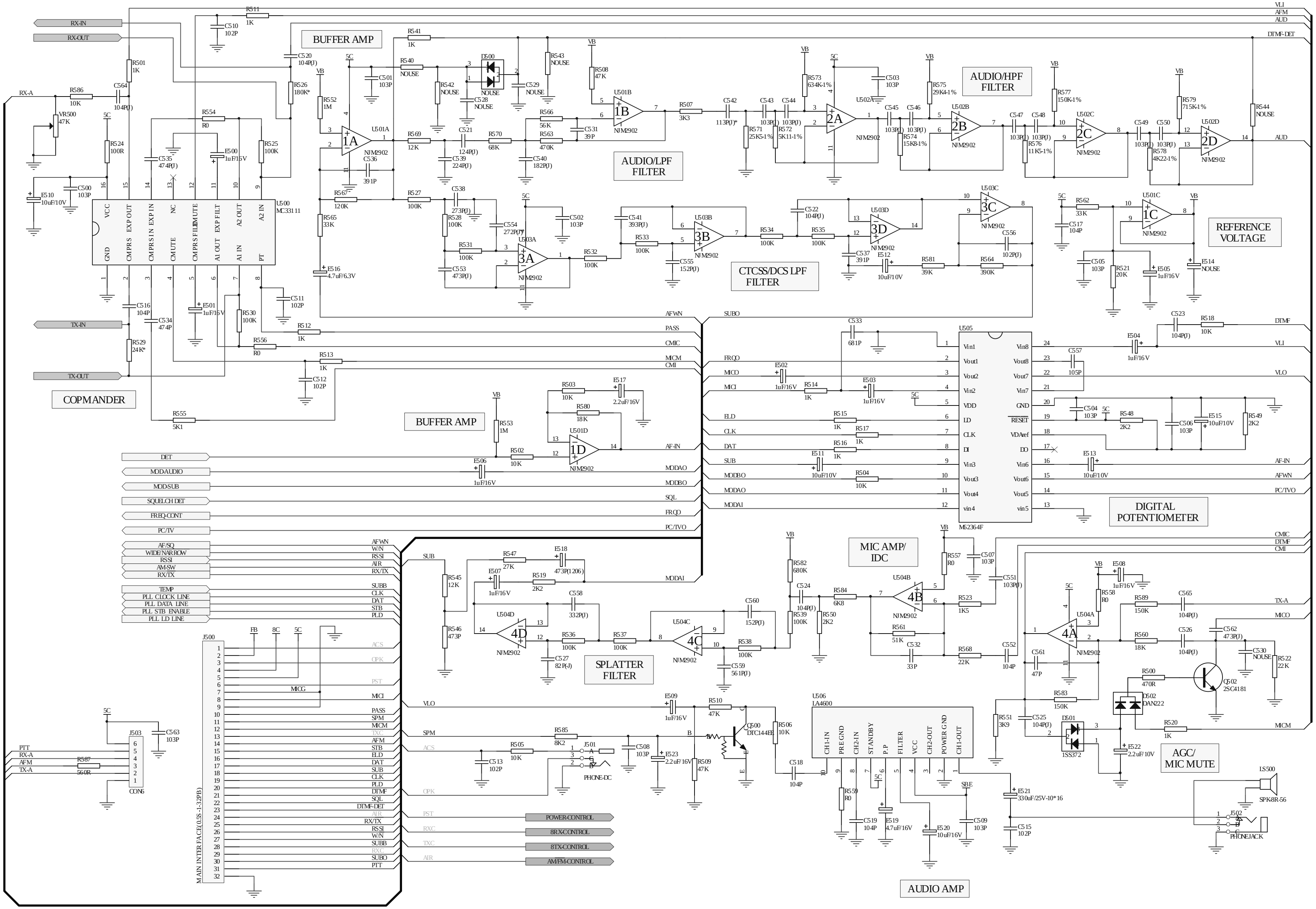
SCHEMATIC DIAGRAM



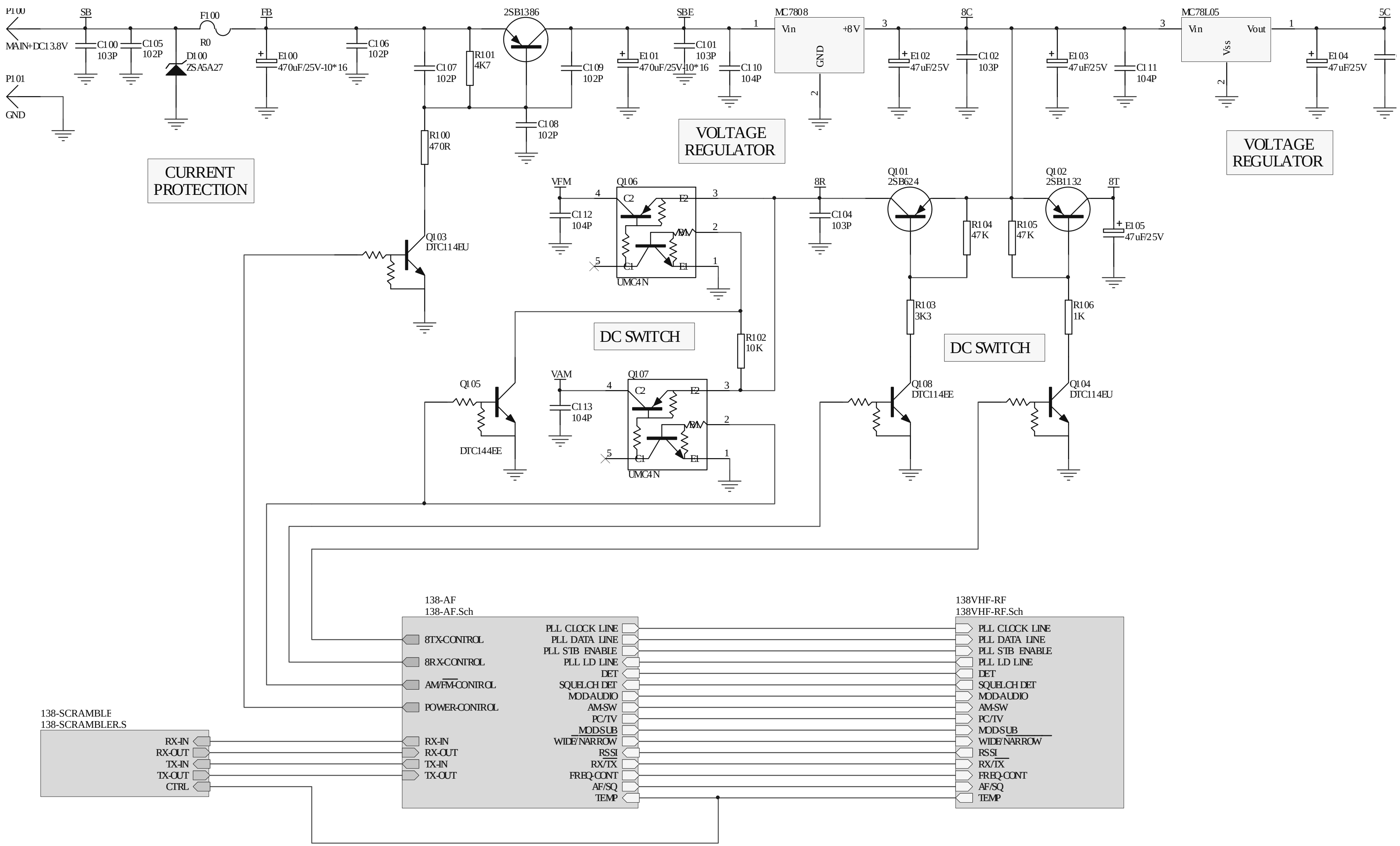
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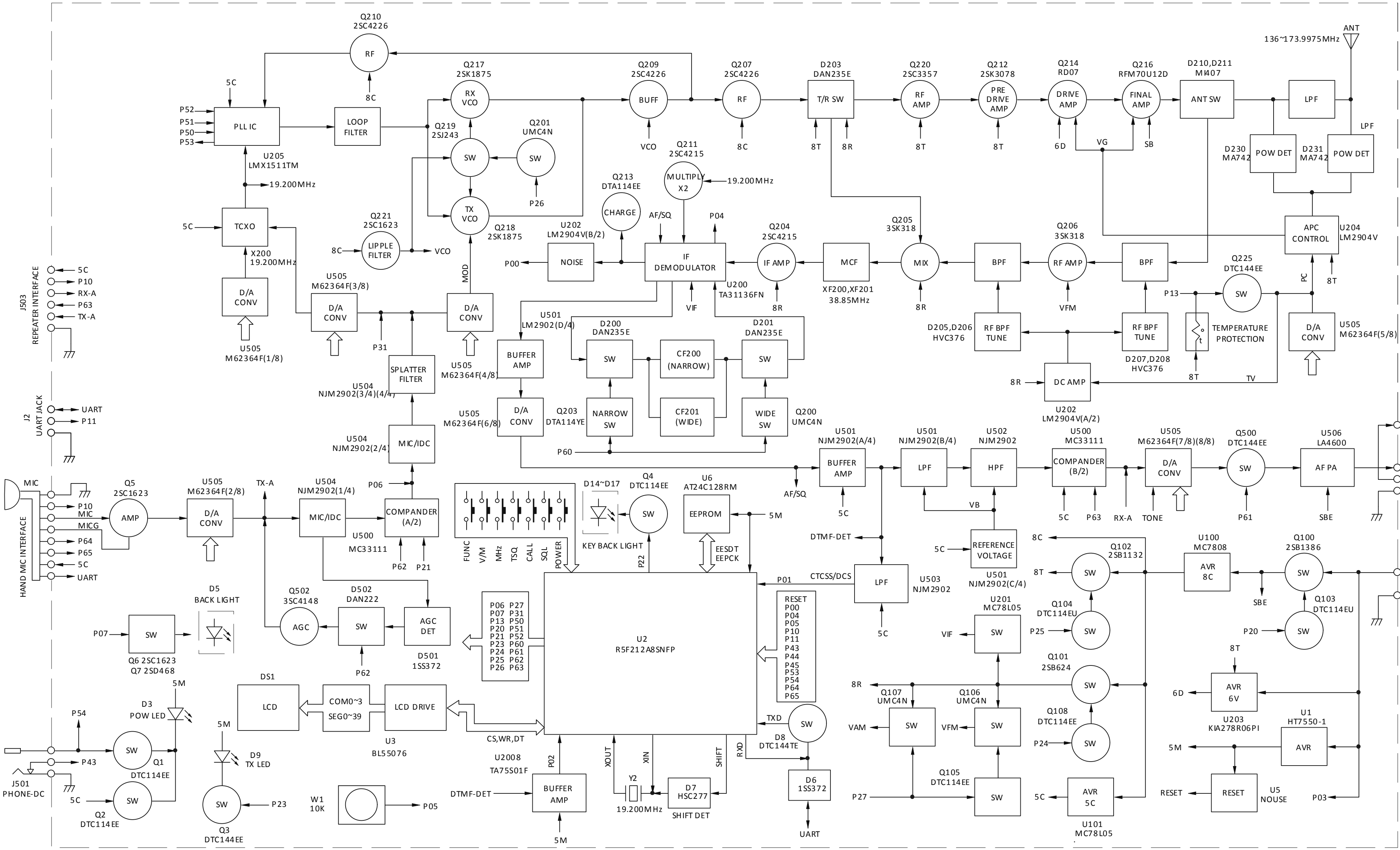
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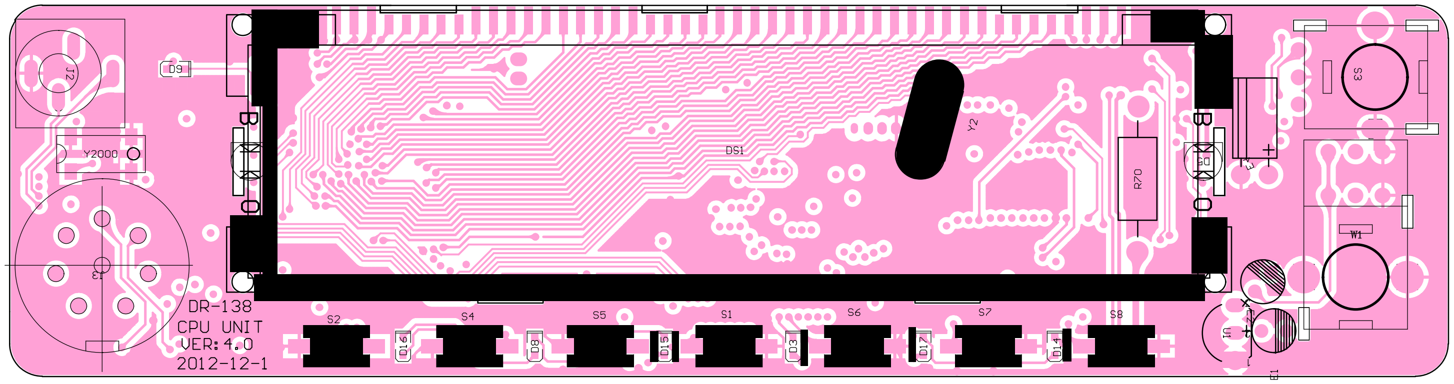
SCHEMATIC DIAGRAM



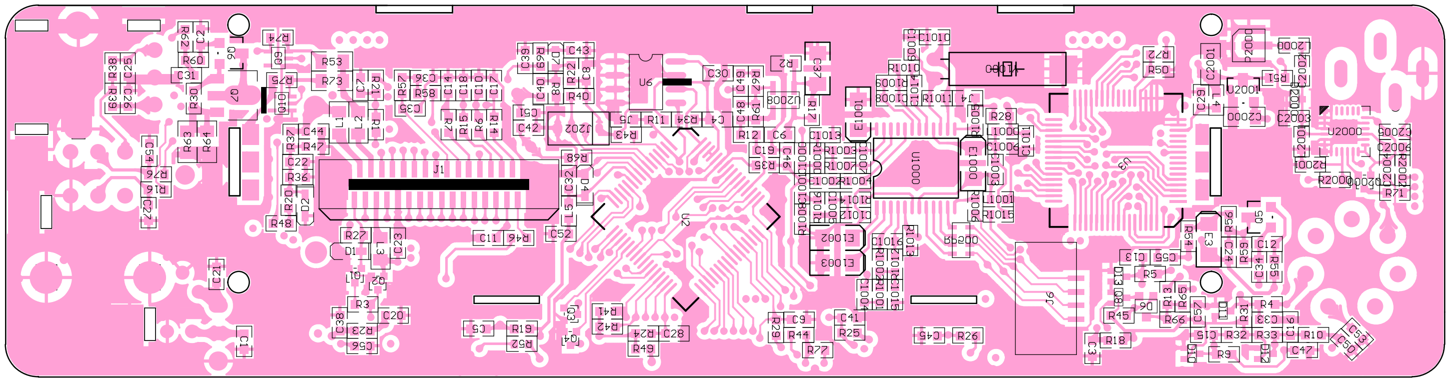
BLOCK DIAGRAM



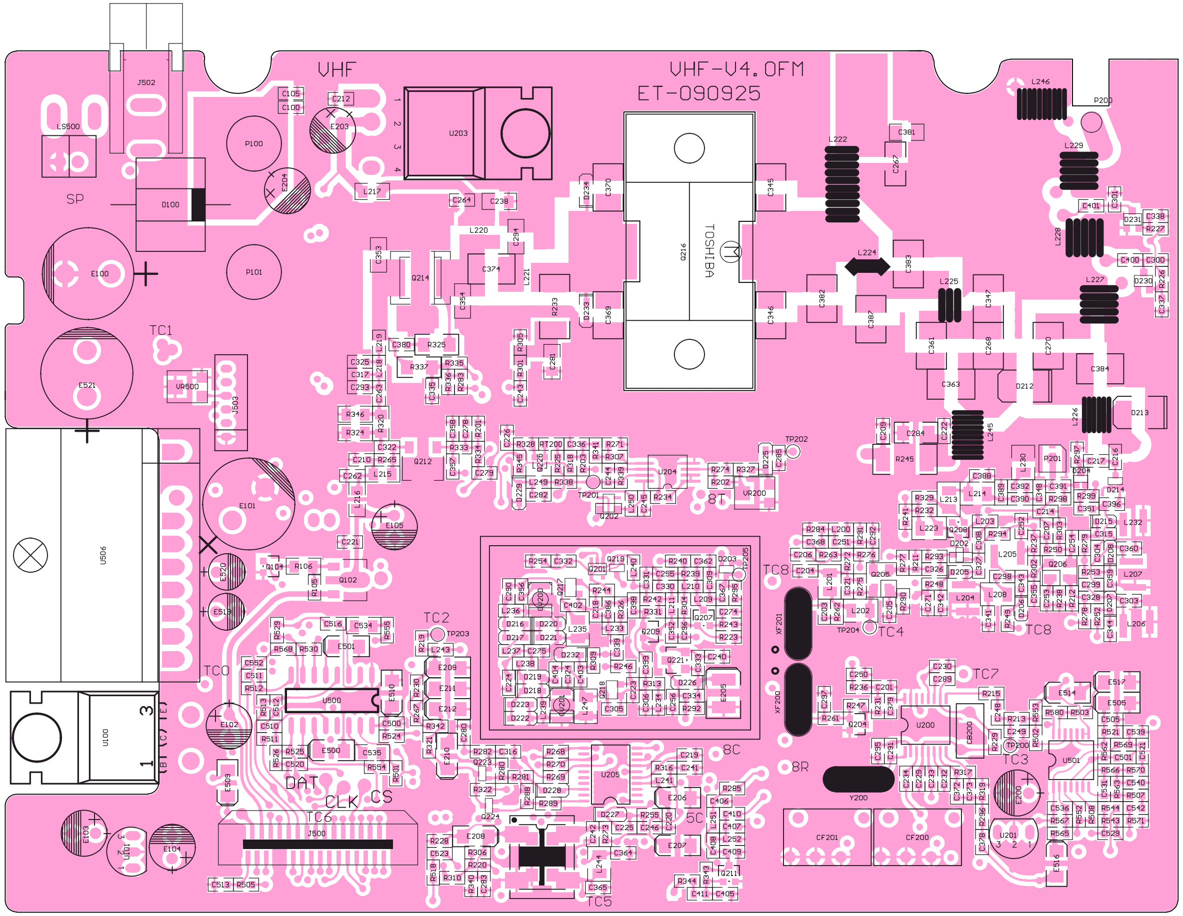
PC board views



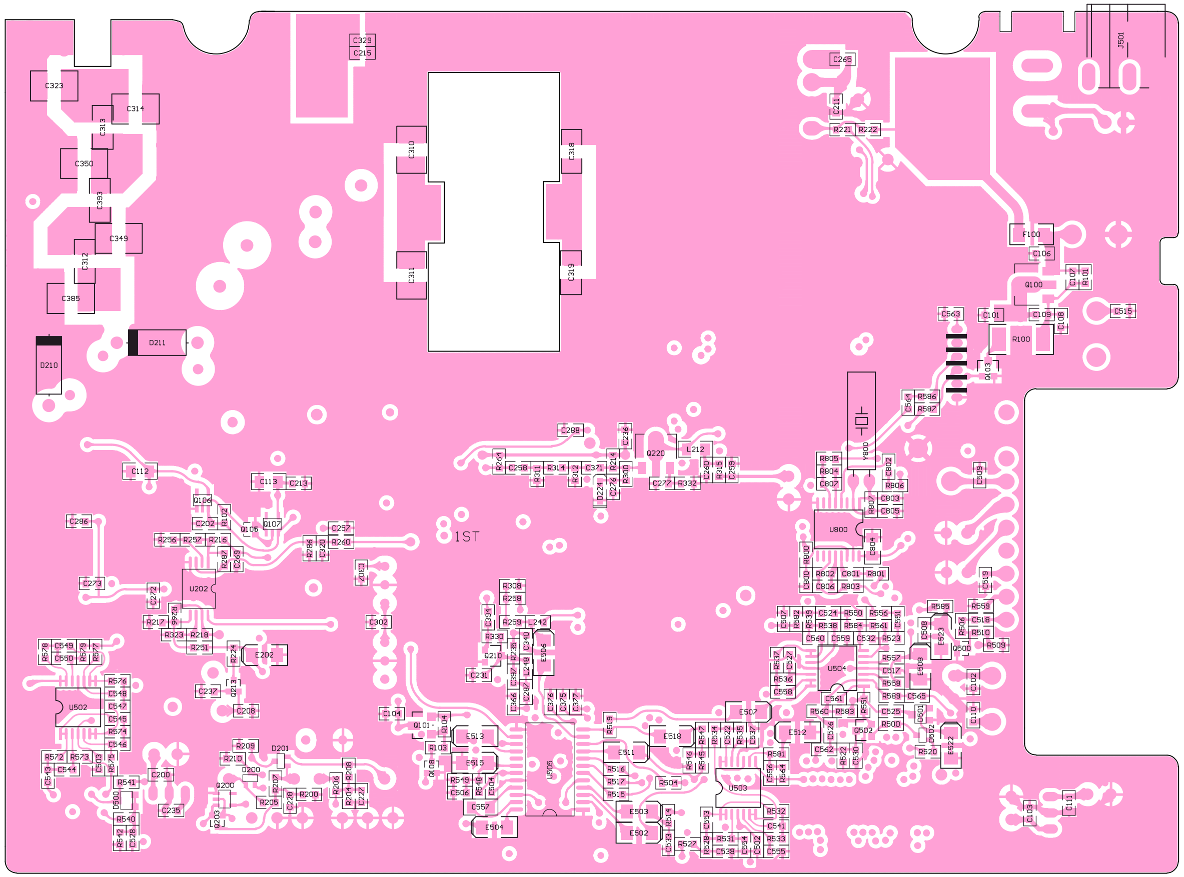
PC board views



PC board views



PC board views

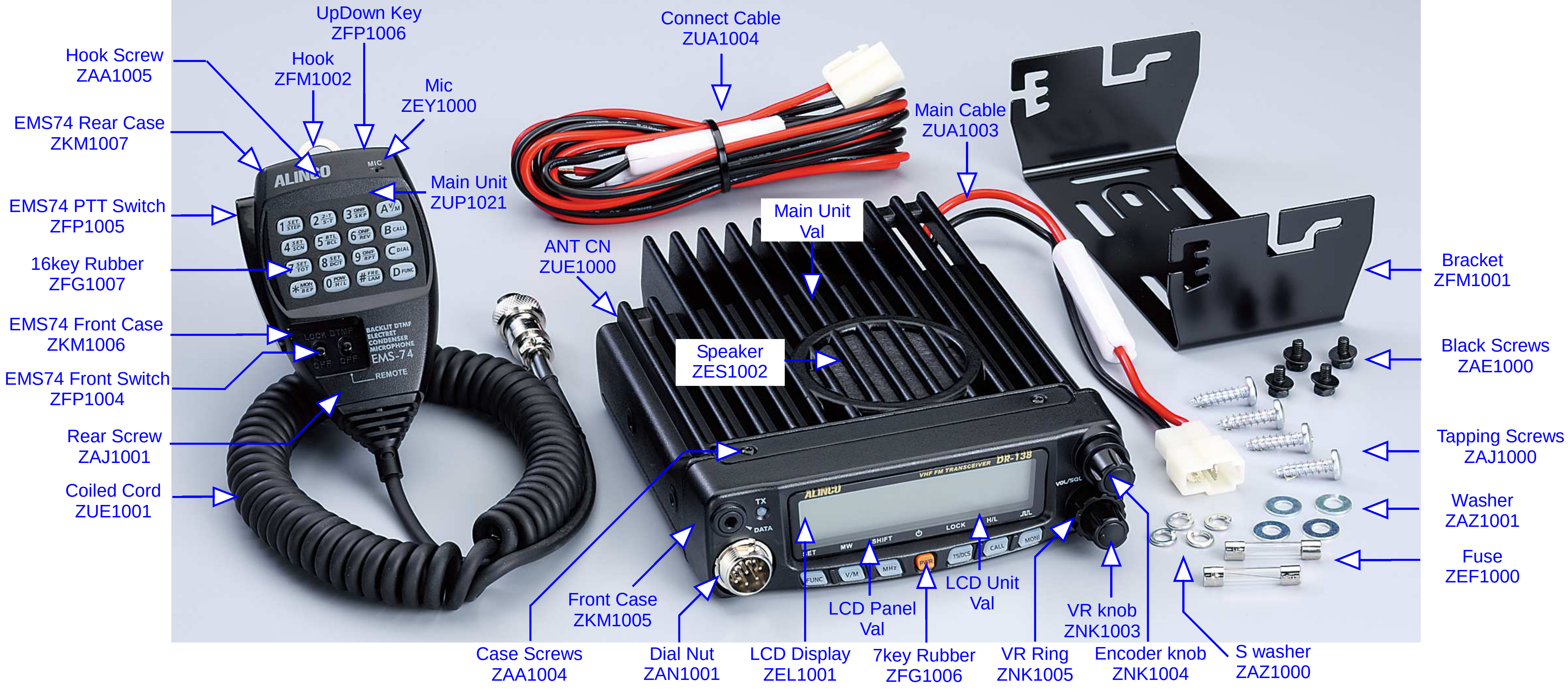


DR-138/438 series

Mechanical Parts

Val

Model	Instruction Manual	LCD Panel	Main Unit	LCD Unit
DR-138	PS0665 / PS0665A	ZDP1008	ZADM138	ZADL138
DR-438	PS0665A	ZDP1012	ZADM438	ZADL438



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